

IN THE CLAIMS

The following claim set replaces all prior versions, and listings, of claims in the application:

1. (currently amended) A method of treating pulp with chlorine dioxide comprising according to which mixing chlorine dioxide is mixed in the pulp and thereafter feeding the chlorine dioxide and pulp mixture thus produced is fed into a treatment vessel to effect in the treatment vessel a in which the chlorine dioxide treatment which is carried out at a temperature of 40 – 90°C and at a pH of 1.5 – 6.5, wherein characterized in that the treatment time in each chlorine dioxide treatment vessel or each chlorine dioxide treatment step is less than 10 minutes, and wherein chlorine dioxide is mixed in the pulp by using intensive mixing and the discharge of the pulp from the treatment vessel to a chlorine dioxide stage washer is arranged to take place in a closed space ensuring that no detrimental amounts of residual dioxide remain in the pulp flowing to the washer.
2. (currently amended) A method as claimed in claim 1, characterized in that comprising adding chemical to the when pulp is when being discharged from the treatment vessel chemical is added into the pulp to deactivate the residual dioxide.
3. (currently amended) A method as claimed in claim 2, characterized in that wherein adding the chemical to the pulp addition mentioned is performed with a fluidizing high-intensity mixer.
4. (currently amended) A method as claimed in claim 3 2, characterized in that wherein adding the chemical to the pulp is performed with the high-intensity mixer mentioned is a static mixer having a narrow lot sufficient to achieve fluidization or with a valve over which an adequate which exhibits a pressure difference is ensured of greater than 1.0 bar sufficient to achieve fluidization.

5. (currently amended) A method as claimed in claim 3, wherein characterized in that the high-intensity mixer mentioned is a fluidizing discharger or a fluidizing centrifugal pump serving as a discharger.
6. (currently amended) A method as claimed in claim 1, characterized in that wherein the chlorine dioxide residue is determined from the pulp at the end of the treatment vessel or after the treatment vessel.
7. (currently amended) A method as claimed in claim 6, characterized in that wherein the chlorine dioxide residue is used to adjust a at least one parameter influencing the speed of the bleaching reaction selected from for example temperature, pressure, or the revolution speed of the mixer.
8. (currently amended) A method as claimed in claim 7, characterized in that wherein the chlorine dioxide residue is used to adjust the temperature which is used to control the chlorine dioxide bleaching reaction to last for substantially the retention time from the mixer to the treatment vessel discharge.
9. (currently amended) A method as claimed in claim 1, characterized in that wherein the chlorine dioxide treatment is carried out in several steps using multiple treatment vessels.
10. (currently amended) A method as claimed in claim 9, characterized in that wherein the dioxide stage is two-stepped, whereby about 5 – 25 kg/adt of chlorine dioxide calculated as active chlorine is dosed into each treatment step.

11. (currently amended) A method as claimed in claim 1, ~~characterized in that wherein~~ the pulp to be treated is pulp, which has been screened and washed, or screened, washed and oxygen bleached, or screened, washed and ozone treated after digestion.

12. (currently amended) A method as claimed in claim 1, ~~characterized in that wherein~~ the chlorine dioxide treatment ~~in question~~ is a bleaching D₀ stage removing lignin.

13. (currently amended) A method as claimed in claim 1, ~~characterized in that wherein~~, when mixing dioxide into the pulp, intensive mixing compensates temperature whereby the chlorine dioxide treatment may be performed at a lower temperature than conventionally.

14. (currently amended) A method as claimed in claim 1, ~~characterized in that wherein~~ the chlorine dioxide concentration in the fiber suspension liquid phase is substantially throughout the whole treatment less than 2.5 g/l calculated as active chlorine.

15. (currently amended) A method as claimed in claim 1, ~~characterized in that wherein~~ the volume of the detrimental residual dioxide depends on the material of the washer used, which residual dioxide volume may be determined both experimentally and based on studies to a level ensuring adequate life.

16. (currently amended) A method as claimed in claim 2, ~~characterized in that wherein~~ the chlorine dioxide treatment is carried out in several steps using multiple treatment vessels.

ALASTALO et al
Serial No. 10/069,462
September 9, 2004

17. (currently amended) A method as claimed in claim 16, ~~characterized in that~~
wherein the dioxide stage is two-stepped, whereby about 5 – 25 kg/adt of chlorine
dioxide calculated as active chlorine is dosed into each treatment step.